

CLAIMS

1. An electronic device (10), which includes

- a case structure (23),
- a display component (19) fitted in connection with the case structure (23),
- camera devices that can be oriented, fitted inside the case structure (23), including an image sensor (12) fitted entirely inside and optics (20.1, 20.2, 20.2'), and
- an aperture arrangement (21.1, 21.2) fitted in the case structure (23), for exposing the image sensor (12) from the outside, and

in which the image sensor (12) is arranged to be rotatable to at least two exposure directions (FS, BS), at least to the display-component (19) side (FS) and to a different side (BS) relative to the display component (19), according to which exposure directions (FS, BS) the aperture arrangement (21.1, 21.2) is arranged in the case structure (23), characterized in that at least part of the optics (20.2') is arranged to be rotatable along with the image sensor (12).

2. A device (10) according to Claim 1, characterized in that at least part of the optics (20.1, 20.2) is arranged in connection with the aperture arrangement (21.1, 21.2).

3. A device (10) according to Claim 1 or 2, characterized in that at least part of the optics (20.1), is equipped with actuator devices (24), for example, in order to permit alteration of the focal length.

4. A device (10) according to any of Claims 1 - 3, characterized in that at least part of the optics, such as, for example, the optics (20.2, 20.2') arranged on the display-component (19) side, is arranged for close-up imaging.

5 5. A device (10) according to any of Claims 1 - 4, characterized in that in connection with the aperture arrangement (21.1, 21.2) there are shutter devices (22) for closing the aperture (21.1) that is not in use at the time.

10 6. A device (10) according to any of Claims 1 - 5, characterized in that the shutter devices (22) are in connection with the camera devices (12).

15 7. A device (10) according to any of Claims 1 - 6, characterized in that the image sensor (12) and the optics (20,2') arranged in connection with it can be moved in the case structure (23), order to permit their rotation.

20 8. A device (10) according to any of Claims 1 - 7, characterized in that in connection with the camera devices (12) there are detection devices (16.5) for determining the exposure direction (FS, BS) in use at the time.

25 9. A method for controlling the orienting of camera devices (12) in an electronic device (10), in which there are directional camera devices inside the case structure (23) of the device (10), including at least an image sensor (12) and optics (20.1, 20.2, 20.2', and in which the case structure (23) includes an aperture arrangement (21.1, 21.2) for exposing the image sensor (12) from the outside, which aperture arrangement (21.1, 21.2) is arranged in at least two exposure directions (FS, BS), and in which method

30 - the image sensor (12) is oriented by rotating it to the selected exposure direction (FS, BS) without directing the orienting-operations to the actual case structure (23) of the device (10) and
- imaging is performed,

characterized in that, in addition to the image sensor (12), at least part of the said optics (20.2') are rotated.

10. A method according to Claim 9, characterized in that the
5 part of the aperture arrangement (21.1) not in use at the time is shut off from the aperture arrangement (21.1, 21.2).

11. A method according to Claim 9 or 10, characterized in that
10 the rotation of the image sensor (12) and the optics (20.2') is motorized.

12. A method according to any of Claims 9 - 11, characterized
in that the image sensor (12) and the optics (20.2') are moved
in the case structure (23), in order to permit their rotation.

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13. Software means for controlling the aiming of the camera
devices (12, 20.1, 20.2) in the method according to any of
Claims 9 - 12, characterized in that the means include

20 - detection means (16.5) for determining the imaging
path (FS, BS) that is active at the time and
- controller means (13, 14) for orienting the image
information on the basis of imaging-path (FS, BS) in-
formation obtained from the detection means (16.5).

25 14. An image sensor (12), which can be fitted to an electronic
device (10), which electronic device (10) includes

30 - a case structure (23),
- a display component (19) arranged in connection
with the case structure (19),
- camera devices that can be oriented, fitted inside
the case structure (23), including the said entirely
internally fitted image sensor (12) and optics (20.1,
20.2, 20.2'), and

- an aperture arrangement (21.1, 21.2) fitted in the case structure (23), for exposing the image sensor (12) from the outside, and

in which the image sensor (12) is arranged to be rotatable to
5 at least two exposure directions (FS, BS), at least to the display-component (19) side (FS) and to a different side (BS) relative to the display component (19), according to which exposure directions (FS, BS) the aperture arrangement (21.1, 21.2) is arranged in the case structure (23), characterized in
10 that at least part of the optics (20.2') is arranged to be rotatable along with the image sensor (12).

15 15. An image sensor (12) according to Claim 14, characterized in that the image sensor (12) and the optics (20.2') arranged in connection with it can be moved in the case structure (23), in order to permit their rotation.